

REMARKS

In the present Amendment, claim 1 has been amended to recite that the polymer employed in the film of the invention is selected from a specific group of polymers recited in Markush form. In addition, a proviso has been added that when the polymer is a polycarbonate, the organic modified layered silicate incorporated in the film contains a tetraalkylphosphonium compound or a quaternary salt of a nitrogen-containing heterocyclic compound.

In view of the amendment to claim 1, claim 4 has been canceled.

In addition, independent claim 14 has been amended in a manner similar to claim 1.

Section 112 support for the amendments may be found, for example, at page 5, lines 13-16; page 7, lines 5-9; and page 10, lines 24-28 of the specification.

Upon entry of the Amendment, which is respectfully requested, claims 1-3, 5-7, 9-12 and 14-20 will be pending.

In Paragraph No. 6 of the Action, claims 1-7, 9-12 and 14-18 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Lan et al (U.S. Pre-Grant Publication 2001/0025076).

The Examiner states that Lan discloses intercalated layered materials comprising a polymer matrix and a layered material such as phyllosilicates. Per the Examiner, paragraph 0030 of Lan discloses that the matrix polymer can be a thermoplastic or thermosetting polymer. Additionally, the Examiner states, paragraph 0033 of Lan “discloses that the polymer reinforcement and gas barrier.” [sic] The Examiner states that it is disclosed in paragraphs 0040-0042 of Lan that the organoclays are straight or branched chain alkyl-substituted with single charged-ammonium or phosphonium ions. Per the Examiner, paragraph 0083 of Lan

discloses that the matrix can be “a polycarbonate or olefin metathesis polymer such as poly(propylene).” Finally, the Examiner states, paragraph 0105 of Lan discloses that the matrix polymer/intercalate composite materials can be used for films and have excellent gas barrier properties.

Applicants submit that the rejection should be withdrawn because Lan does not disclose or render obvious the films of the present invention.

As seen in independent claims 1 and 14, the present invention relates to a film of a polymer composition comprising (i) a polymer having a glass transition temperature (Tg) of 120°C to 400°C as a simple substance of the polymer, and (ii) an organic modified layered silicate having a decomposition starting temperature of 250°C to 350°C.

The polymer is selected from the specific polymers recited in Markush form in claims 1 and 14, and the organic modified layered silicate is incorporated in the polymer.

As also provided in claims 1 and 14, when the polymer is a polycarbonate, the organic modified layered silicate contains a tetraalkylphosphonium compound or a quaternary salt of a nitrogen-containing heterocyclic compound.

Lan does not disclose or render obvious the presently claimed films. The Examiner does not point out where Lan discloses or suggests that the polymer to be employed must have a glass transition temperature Tg of 120 to 400°C. Nor does the Examiner point out where Lan discloses or suggests that the organic modified layered silicate to be employed must have a decomposition starting temperature of 250 to 350°C.

Further, Lan does not identically disclose or fairly suggest the presently recited Markush group of polymers. While Lan, as noted by the Examiner, does disclose polycarbonates, this is

in a highly generic disclosure of many polymers. See Lan at paragraph 0083. And contrary to the Examiner's assertion, Applicants do not see where Lan discloses olefin metathesis polymers.

While Lan does disclose that polycarbonate may be employed as a polymer, see Lan at paragraph 0083, slightly more than halfway down page 9, and the present application indicates that polycarbonate has a Tg of 160°C at page 7, lines 5-6, the disclosure of polycarbonate in Lan is in a broad generic disclosure of many, many thermoplastic resins and rubbers for use as matrix monomers, cligomers or polymers. There is nothing which would lead a person of ordinary skill to select polycarbonate as opposed to one of the many other disclosed polymers.

Even if a person of ordinary skill in the art were to select polycarbonate, as opposed to one of the many other polymers disclosed in Lan, that person still would not arrive at a film of the present invention. In this regard, Lan does not disclose or fairly suggest that, when polycarbonate is employed, the organic modified layered silicate must contain a tetraalkylphosphonium compound or a quaternary salt of a nitrogen-containing heterocyclic compound. See present claims 1 and 14. Lan's disclosure, see e.g., Lan at [0041] - [0042], is generic and does not suggest this particular combination.

The Examiner also states that Lan discloses olefin metathesis polymers "such as poly(propylene)." See page 3 of the Action. With due respect, the Examiner is in error here. Polypropylene is not an olefin metathesis polymer. Olefin metathesis polymers include a double bond in the backbone of the polymer chain. Polypropylene does not include a double bond in the polymer chain, and Applicants are not aware that polypropylene can be prepared by an olefin metathesis polymerization process.

For a discussion of the nature of olefin metathesis polymers, the Examiner will kindly refer to <http://www.pslc.ws/mactest/meta.htm>, which provides materials on Olefin Metathesis Polymerization from the Polymer Science Department of the University of Southern Mississippi. As seen there (and in other, readily available materials), the polymers made by the acyclic diene metathesis polymerization (ADMET) and ROMP (ring opening metathesis polymerization) methods include a double bond in the backbone of the polymer chain.¹

As to the organic modified layered silicate, the Examiner is correct that Lan discloses that the organoclays of Lan's invention may be prepared using multi-charged spacing/coupling agents which include ammonium, phosphonium, oxonium, or sulfonium derivatives of aliphatic, aromatic or arylaliphatic amines, phosphines, esters, alcohols and sulfides. See Lan at 0041. However, based on the description at page 10 of the present specification, it appears that many of these materials as disclosed in Lan would be conventional organic modified layered silicates (for example, those prepared using a tetralkylammonium salt as an organophilizing agent) which would have a decomposition starting temperature lower than 190°C, far outside the presently recited range of 250 to 350°C. It appears that Lan's disclosure is generic in nature, and there is nothing which would lead or motivate a person of ordinary skill in the art to select only organic modified layered silicates having a decomposition starting temperature of 250 to 350°C from among those disclosed in Lan.

¹ Richard R. Schrock, Living Ring-Opening Metathesis Polymerization Catalyzed by Well-Characterized Transition-Metal Alkylidene Complexes, *Acc. Chem. Res.* 1990, 23, 158-165, submitted herewith, also illustrates that olefin metathesis polymers include a double bond in the backbone of the polymer chain.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the § 102(b) rejection of claims 1-7, 9-12 and 14-18 based on Lan et al, US2001/0025076.

In Paragraph No. 7 of the Action, claims 1-3 and 18-20 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kaminsky et al (U.S. Patent No. 6,844,047).

While the rejection is stated to be under section 102(b), it appears to Applicants that Kaminsky is prior art solely under § 102(e) as of its U.S. filing date of October 7, 2002.

In the present Amendment, the subject matter of claim 4 has been incorporated into independent claims 1 and 14, respectively. Claim 4 was not subject to this rejection.

In addition, Kaminsky relates to an optical element comprising a substrate with a surface feature having a roughness average (Ra) of from 1 to 200 micrometers containing a dispersion of minute layered particulates in a polymer binder. In a preferred form, the invention of Kaminsky relates to an optical element to manage illumination light for rear projection liquid crystal display devices. See Kaminsky at col. 1, lines 15-24.

While the Examiner is correct that Kaminsky does disclose that the polymer can be a polyester or polycarbonate, Kaminsky does not appear to disclose or fairly suggest that a polymer which has a glass transition temperature of 120 to 400°C must be employed, even assuming that polycarbonate has a Tg within the recited range. Further, Applicants do not see where Kaminsky discloses or fairly suggests that its intercalated clay material must have a decomposition starting temperature of 250 to 350°C.

For at least these reasons, Applicants respectfully request reconsideration and withdrawal of the section 102(b) rejection of claims 1-3 and 18-20 based on Kaminsky et al '047.

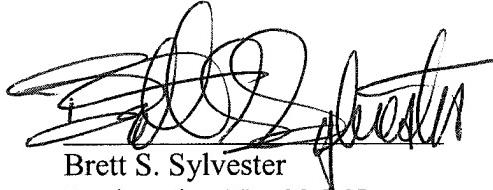
AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/665,432

Atty. Docket No. 77419

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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